

# **The study of diagnosis discrepancies and postinterventional deaths**

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In the beginning, autopsy was used as a research tool, to uncover the mysteries of the human body. In time, it transformed in a way to better knowledge of the diseases and then a quantification instrument of the effects of medical and surgical treatments.

Diagnostic discrepancies were studied for a long time and multiple causes for their appearance were identified.

The purpose of this research is to analyze their evolution in an university medical center from Romania over five decades and to observe the frequency of affecting various organs of the human body through time. Another objective of the study was to see if there is any connection between diagnostic discrepancies and the medical staff personality, medical technique evolution and not at last the autopsy percentage. The connection with sex, age, days of hospitalization and the frequency between clinic and pathology diagnostic was also a desiderate.

In our work we applied the retrospective analysis of the deceased patients cases that underwent necropsy. We took in consideration the pathological necropsies in a period of five decades and the forensic autopsies ( in this case we choose only the cases of the patients that deceased following a diagnostic or therapeutic maneuver and had a non-violent death) in a period of 15 years.

During the chosen interval of time there were performed 5941 pathological autopsies and from these 1732 were included in the study according to our criteria. Having as a starting point Goldman&Co from 1983 criteria, modified by us, four new discrepancy categories were defined. For the major discrepancies 7,4% were class I diagnostics discrepancies, 4,71% for the class II discrepancy, 16,37% for the class III discrepancy; 0,63% were included in the minor discrepancies class (or class IV). So major discrepancies were 28,51% from the total of necropsies in our time interval.

The data gathered as major discrepancies and segregated to organ determination found that pulmonary system was involved in 893 cases (52,71%), cardiovascular system in 306 cases (18,06%), digestive system in 244 cases(14,4%), central nervous system in 147 cases(8,67%) and other organs in 104 cases(6,13%).

During the last decades studied, we found an alarming decrease in the number of autopsies because of exemptions and this directly influences the diagnostic discrepancy rate. We observed that, while the percentage of discrepancies is increasing, the number of autopsies is decreasing. For example, the first three decades had over 1400 cases per decade and discrepancy rate was between 17 and 37%; in the last two decades the autopsy number was half (785 and 520) and the discrepancy percentage raised to 44% in the fourth and 42% in

the fifth decade. We also observed an increase of the discrepancy cases along with decrease of the autopsy numbers.

In the second and third decade, the frequency of the major discrepancies first decreased, and then in the next periods, during the medical technological boom, it has tripled. If for the class I and II discrepancies there were no major variations, we cannot say the same for the class III, where the frequency of these inconsistencies was doubled between the first and the last two decades. The same for the minor discrepancies that during the last two decades and mainly the fifth have grown.

Both for respiratory and cardiovascular conditions, the rate increased in the last two decades comparing with the previous. The digestive tract and central nervous system conditions did not have any major variations.

Regarding post surgical deaths, from a total of 621 non-violent deaths we selected the ones with discrepancy between clinic and pathology diagnostic and it was 238 cases representing 38,32%.

From the total of 238 cases, 231 (37,91% of the 621 cases) were major discrepancies as it follows: 32 (5,15%) in class I, 29 (4,66%) in class II and 170 (27,27%) in class III. Minor discrepancies were in the class IV – 7 cases (1,27%).

The most frequent surgical interventions were laparotomies (36,55%), toracotomy(10,07%), coronary angioplasty with stent implantation(7,46%), craniotomy(6,72%), central catheterization(5,46%) and inferior limb surgery such as amputations, hip arthroplasty (4,2%).

After segregation on to organs of the major discrepancies it was found that pulmonary disease affected 95 cases (41,12%), cardiovascular condition 83 cases(35,93%), digestive system 25 cases(10,82%), central nervous system diseases 10 cases (4,32%) and other organs condition in 18 cases (7,79%).

We can conclude that there is a direct relation between the number of autopsies, doctor's personality, medical technique development and the frequency of diagnostic discrepancies. As it regards the most frequently missed diagnostic, over or under diagnosed the pulmonary conditions (pneumonia) and cardiovascular conditions (acute heart attack and pulmonary embolia) were leading.

The purpose of this research is not to judge or blame the clinician but to help the individual by analyzing the cases and to emphasize the importance of necropsy in such a technologized era of medicine. The health professionals must accept that autopsy of one of their patients is not done in order to prove incompetence or lack of knowledge but in contrary, an important modality to better knowing and understanding medical science.

**Keywords:** diagnosis discrepancies, postinterventional, autopsies, doctor's personality, medical technique